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**Analysis of Employment and Wage Rates of  
Agricultural Labourers in Uttar Pradesh Extent,  
Trend and Determination**

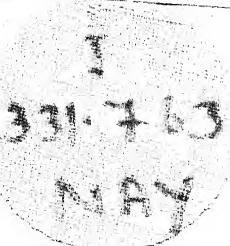
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**8<sup>th</sup> December, 2003**



**Analysis of Employment and Wage Rates of  
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Trend and Determinants**

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## **CHAPTER I**

### **Trend of Employment and Wage Rates of Agricultural Labourers**

#### **1.1. Introduction**

Uttar Pradesh is the most populous state in the country accounting for 16.4 percent of the country's population, where 29.29% of the total state's population is agricultural labourers (Government of India, 2001). In a recent study conducted by World Bank revealed that Uttar Pradesh constitute 8 percent of the global poor and 20 percent of the poor in India (The Pioneer, 23<sup>rd</sup>, November 2002, p.3). However, though the poverty ratio in the state has fallen from 57 percent in 1973-74 to 42 percent in 1987-88 and to 31.15 percent in 1999-2000, but the percent of people living below the poverty line is still higher than that of national average of 26.10 percent. The people living below the poverty line in rural areas are still higher than combined poverty ratio in Uttar Pradesh as well as national poverty ratio of rural areas.\* In addition, the declining poverty ratio is not only less than the national poverty ratio but also there is widespread inequality in different regions of the state.<sup>†</sup> As agricultural labourers constitute substantial proportion of the total poor in the state, the study of standard of living of this category is our prime concern.

#### **1.2. Debate on Changes in Economic Condition of Agricultural Labourers**

The factors primarily affect the standard of living of the agricultural labourer are their employment pattern and wage rates. The increase of impoverishment of agricultural labourers is due to decline of real wage rates and number of working days per annum. Various studies have identified the pattern of employment and trends of real wages in different parts of the country as well as in Uttar Pradesh.

The demand for agricultural labour has increased or number of working days has increased due to introduction of green revolution technology, viz., irrigation, HYV seeds and fertilizers (Dixit, R.S., and P. P. Singh, 1970; NCAER, 1973; Bartsch, W.H. 1977;

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\* People living below the poverty line in rural areas are 31.22 percent and combined (both rural and urban) estimation is 31.12 percent based on the estimation of 55<sup>th</sup> round of NSS data. Similarly, rural poverty ratio in all India level is 27.09 percent (Government of India, 2001).

<sup>†</sup> The comparison was made between 50<sup>th</sup> and 55<sup>th</sup> round of NSS data. According to NSS estimation, the declining of poverty in India during 1995-96 to 1999-2000 was 9.87%, whereas it is 9.70% in Uttar Pradesh.

Singh, A.K. 1987). On the other hand, due to mechanization of agriculture, i.e., mainly tractorisation, the demand for agricultural labourers has declined during green revolution period in India (NCEAR, 1973; Shah, S.L. and C.R. Singh, 1970; Bartsch, W.H. 1977; Singh, B. 1968; Nayyar, R. 1980). More specifically, the employment scenario of agricultural labourers in Uttar Pradesh shows that the number of working days has declined sharply between 1950-51 to 1956-57, whereas it increased marginally during 1964-65 to 1974-75 (Singh, A.K., 1987). The number of working days by all the operations has increased marginally due to application of green revolution techniques for male, female and children. Moreover, the extent of employment of women in agricultural labour households is affected at a higher rate than that of male in an unfavorable agricultural year (Unni, Jeemol, 1988).

The debate on changing scenario of real wage of agricultural labourer is important. During the pre-green revolution period, the trend of real wages has increased in Kerala and Punjab. However, when the trend was extended to 1971-72, some states, viz., Uttar Pradesh, Tamilnadu and Gujarat showed an increasing trend of real wages (Mundel, Sudipto, 1984 and, A.V. Jose, 1974). Whereas, Lal, D. (1976) found that the trend of agricultural wages has increased in all states except West Bengal in the beginning of the Green Revolution. It implies that there has been an increasing trend of real wage in some states, while it is not in other states after the beginning of the green revolution in India. On the other hand, some other concluded that the real wage rates have fallen or remained constant during the beginning of the green revolution period (Bardhan, P.K., 1970). It is due to the fact that the impact of green revolution on real wage at the beginning stage could not spread extensively. However, later on he found that increase of real wage differs in different states because of differing relative strength of labour movements than increase in agricultural production, lower increase in landless labour and lower incidence of unemployment (Bardhan, P.K., 1973). It means that strength of labour movements is stronger factor for higher wage rate for agricultural labourer than the increase in agricultural production, lower increase in landless labour etc. It has been pointed out that those two northwestern states, viz., Punjab and Haryana and Kerala from south consistently maintained a high average level of money wages during 1970-85 (Jose, A.V., 1988). On the other hand, there has been evidence of deceleration of real wages in some of the regions in mid-eighties and almost all regions in nineties in India (Sarmah, Sasank, 2002).

So far as the trend of real wage rates of agricultural labourers in Uttar Pradesh is concerned, there is virtually no tendency of real wages to increase up to the beginning of

the green revolution (Nayyar, R., 1980). Jose (1974) found an improvement in the money and real wages of agricultural labourers between 1968-69 to 1971-72. Similarly, there has been positive trend of real wages of agricultural labourers except few years during 1967-68 to 1978-79 in Uttar Pradesh (Singh, A.K., 1987).

In view of this given scenario, an attempt has been made to analyse the extent and trends of agricultural labourers during the green revolution period in Uttar Pradesh. Secondly, to study the extent, structure and trend of employment pattern of agricultural labourers during the same period. Thirdly, to analyse the trend of money and real wages for different categories of agricultural labourers in Uttar Pradesh. Fourthly, to assess the extent of indebtedness of agricultural labourer in the state.

### 1.3. Methodological Issues

Secondary sources data relating to extent of agricultural labourers, employment pattern of male and female in the rural labour households, average daily wage rate of male and female, consumer price index, wage index, index of agricultural product are collected from various volumes of decennial census, rural labour enquiry reports, consumer price index of agricultural labourers, quarterly bulletin of statistics during 1971-2001 in Uttar Pradesh.

The growth performance is evaluated on the basis of estimates of compound annual growth rate (CAGR) of money, CPIAL and real wages of agricultural labourers at the state level. The CAGR is obtained by fitting the standard form  $\text{Log } Y = a + bt$  to the trend of money wage, CPIAL, real wages by Ordinary Least Square (OLS). Additionally, CAGR is estimated for two sub-periods at the state level. To understand whether the rate of growth has accelerated or decelerated, simple extension of  $\text{Log } Y = a + bt$  to the second-degree polynomial form  $\text{Log } Y = a + bt + ct^2$  is introduced. Depending upon the sign and significance of 'c', it is possible to say whether or not the rate of growth of real wage increasing or decreasing over the period. The series is taken to be decelerating if both 'b' and 'c' are significant and 'c' is negative. 'D' indicates deceleration and 'ND' indicates no deceleration.

The present paper has been divided into seven sections. Section I, II and III tried to discuss the relevance, debate of employment and real wages of agricultural labourers, methodological issues. Sections IV, V, VI and VII are designed to discuss the extend and trend of agricultural labourers, employment pattern, trends of wages and indebtedness of

agricultural labourers. Finally, section VIII discusses the conclusions arising out of the study.

#### 1.4. Extent of Agricultural Labourers

There has been an increase in the number and proportion of agricultural labourers out of total main workers during the post green revolution period in rural Uttar Pradesh. According to the Census estimates, agricultural labourers as a proportion of total main workers declined from 22.21 percent in 1971 to 21.47 percent in 1991 and again increased to 29.29 percent in 2001 (see Table 1). Similarly, the proportion of male agricultural labour out of total agricultural labour has declined from 77.02 percent in 1971 to 76.89 percent in 1991. On the contrary, the proportion of female labourers out of total agricultural labour has increased from 22.97 percent in 1971 to 23.10 percent in 1991. However, the proportion of agricultural labours (including both male and female) during seventies was lower than that of nineties.

**Table 1: Changing Pattern of Agricultural Labourers in Uttar Pradesh**

Years	Main Rural Workers	Agricultural Labourers	Agricultural Male Labourers	Agricultural Female Labourers
1971	23,906,188 (31.47)	5,310,831 (22.21)	4,090,748 (77.02)	1,220,083 (22.97)
1981	27,026,505 (29.71)	4,841,198 (17.91)	3,877,538 (80.09)	963,660 (19.90)
1991	34,027,724 (30.52)	7,306,001 (21.47)	5,618,107 (76.89)	1,687,894 (23.10)
2001	44,865,277 (34.09)	13,141,632 (29.29)	NA	NA

Source: Census of India, 1971, 1981 and 1991, Series-22, Part-VII-A and B, Household Tables, Uttar Pradesh. Data in 2001 are provisional and collected from [www.censusindia.gov.in](http://www.censusindia.gov.in) of India.

*Notes: The values in the parenthesis show the percent of the total. The percent values in column of main rural workers as a percent of total rural population, whereas agricultural labourers are the percent of the main rural workers and male and female agricultural labourers are percent of agricultural labourers.*

The increase in the proportion of agricultural labourers from 22.21 percent to 29.29 percent during the 1971-2001 cannot be attributed only due to demographic factors. Because, the population increased by 88.10 percent in Uttar Pradesh, whereas there has been 147.44 percent increase in the number of agricultural labourers. The increase in number and proportion of agricultural labourers to total main workers is partly due to increase in population and partly due to land reforms and impact of green

revolution (Nayyar, R., 1980). Due to fear of land reforms together with enhanced profits, many of the medium and large farmers resumed their land for own cultivation. The reaction forced the tenants and share croppers into agricultural labourers on an accelerated rate. Moreover, many studies found that green revolution technology helped in favour of large landowners. Because high priced inputs, credit and other necessary inputs are easily accessible to large farmers. This has resulted in unequal gains from the new agricultural technology, which ultimately widened the gap between the large farmers on the one hand and small cultivators and agricultural labourers on the other hand. Moreover, the increasing returns from agricultural production have created an added incentive for the large landowners to acquire additional land. This tendency made the displacement of tenants and small cultivators from their land and consequently they were converted into agricultural labourers.

In order to discuss the extent of agricultural labourers in different dimensions, the number of rural households, rural labour households and rural agricultural labour households for different categories in different points of time are taken form Rural Labour Enquiry Reports. The estimated figures of total number of rural households, rural labour households and agricultural labour households for all categories has increased, whereas the increase of these categories is sharper for scheduled caste category (see Table 2 and 3). However, the proportion of rural labour households to rural households has increased from 19.06 percent in 1974-75 to 25.58 percent in 1987-88 and again declined to 19.25 percent in 1993-94 for all categories (see Table 2). In addition, the proportion of rural labour households to rural households for scheduled castes and scheduled tribes category is quite higher compared to all categories. Most remarkably, not only the proportion of agricultural rural households to rural labour households constitute four fifth of the rural labour households for all categories, but also trend remained almost constant during this period (see Table 3). The large proportion of household with small and marginal land holdings were forced to enter the wage labour market due to failure of the monsoon in some agricultural years. In such conditions, along with a well spread out government sponsored relief works programme organized during those years in the state, could have led to wage employment becoming the major source of income for many households with cultivable land.

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Source: Census of India, 1971, 1981 and 1991, Series-22, Part-VII-A and B, Household Tables, Uttar Pradesh. Data in 2001 are provisional and collected from [www.census](http://www.censusindia.gov.in) of India.

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**Table 2: Estimated Number of Rural Households and Rural Labour Households ('000)**

Year	Rural Household (All category)	Rural Labour Household (All category)	RLH as a Percent of RH	Rural Household Scheduled Castes	Rural Labour Household Scheduled Castes	RLH as a Percent of RH	Rural Household Scheduled Tribes	Rural Labour Household Scheduled Tribes	RLH Percent of RH
1974-75	15,148	2,887	19.06	3,760	1,693	45.03	402	44	10.95
1977-78	16,043	3,674	22.90	3,884	1,997	51.42	121	31	25.62
1983-84	16,881	3,737	22.14	4,016	1,959	48.78	208	54	25.96
1987-88	18,098	4,630	25.58	4,705	2,440	51.86	326	144	44.17
1993-94	19,992	3,849	19.25	5,289	2,091	39.53	161	50	31.06

Source: Rural Labour Enquiry Reports

Note: RLH, RH portrays Rural Labour Households and Rural Households respectively.

**Table 3: Estimated Number of Rural Labour Households and Agricultural Labour Households ('000)**

Year	Rural Labour Households All category	Agricultural Labour households All category	ALH as a Percent of RLH	Rural Labour Households (Scheduled Castes)	Agricultural labour Household (Scheduled Castes)	ALH as a Percent of RLH	Rural Labour Household (Scheduled Tribes)	Agricultural Labour Household (Scheduled Tribes)	ALH as a Percent of RLH
1974-75	2,887	2,395	82.96	1,693	1,473	87.01	44	36	81.82
1977-78	3,674	2,906	79.10	1,997	1,706	85.43	31	25	80.65
1983-84	3,737	3,040	81.35	1,959	1,680	85.76	54	43	79.63
1987-88	4,630	3,139	67.80	2,440	1,989	81.52	144	39	72.92
1993-94	3,849	3,061	79.53	2,091	1,713	81.92	50	41	82.00

Source: Rural Labour Enquiry Reports

Note: ALH, RLH means Agricultural Labour Household and Rural Labour Household respectively.

However, the trend of agricultural labour shows a clear picture, when the analysis under male and female is taken for different categories. No doubt, the male category constitutes substantial proportion, when the total agricultural labourers are taken into consideration (see Table 4). During the study period in Uttar Pradesh, the proportion of male agricultural labourer has increased from 64.25 percent in 1974-75 to 87.38 percent in 1987-88, whereas the women participation rate has declined from 31.07 percent in 1974-75 to 10.30 percent during 1987-88. It happened basically due to unfavourable agricultural year in 1974-75, when there was higher proportion of female participation compared to female in 1987-88 (Unni, Jeemol, 1988). The participation rate of children has declined throughout the study period. Similar kind of trend has been observed for schedule castes and schedule tribes during the study period. However, the participation

rate of women in schedule castes and schedule tribes category is always higher than that of women in all categories.

**Table 4: Number of Agricultural Labour by Sex in Uttar Pradesh ('000)**

Year	Male	Female	Children	Total
<b>General</b>				
1974-75	2957 (64.25)	1430 (31.07)	216 (4.69)	4602 (100.00)
1983-84	3025 (71.03)	1075 (25.24)	159 (3.73)	4259 (100.00)
1987-88	3697 (87.38)	436 (10.30)	98 (2.32)	4231 (100.00)
1993-94	3267 (76.80)	923 (21.70)	64 (1.50)	4254 (100.00)
<b>Scheduled castes</b>				
1974-75	1799 (61.63)	991 (33.95)	130 (4.45)	2919 (100.00)
1983-84	1732 (67.63)	744 (29.05)	85 (3.32)	2561 (100.00)
1987-88	2043 (85.45)	290 (12.13)	58 (2.43)	2391 (100.00)
1993-94	1868 (71.87)	688 (26.47)	43 (1.66)	2599 (100.00)
<b>Scheduled tribes</b>				
1974-75	41 (53.95)	31 (40.79)	4 (5.26)	76 (100.00)
1983-84	48 (82.76)	6 (10.34)	4 (6.90)	58 (100.00)
1987-88	96 (85.71)	16 (14.29)	NA	112 (100.00)
1993-94	41 (65.08)	20 (31.75)	2 (3.17)	63 (100.00)

Source: Rural Labour Enquiry Reports

Note: Values in the Parenthesis show the percent of total

The structural analysis of agricultural labour household in Uttar Pradesh indicates that the household with land has shown some positive indication by increasing from 56.50 percent in 1974-75 to 62.14 percent in 1993-94 (see Table 5). Similarly, the proportion of agricultural labourer of without land out of total rural households has come down from 43.20 percent in 1974-75 to 37.86 percent in 1993-94. This is an indication of positive impact of land reforms in the state (see Table 5).

**Table 5: Structure of Agricultural Labour Households for all classes in Uttar Pradesh (in percent)**

Items	1974-75	1983-84	1987-88	1993-94
With land	56.8	53.62	79.10	62.14
Without land	43.2	46.38	20.90	37.86

Source: Rural Labour Enquiry Reports

### **1.5. Employment Pattern of Agricultural Labourer in Rural Labour Households**

The proportion of rural agricultural labour households to rural labour households as well as rural households is not a very efficient measure of the living standard of rural labour households, since it only indicates the proportion of person who was working during an agricultural year. The intensity of work or the number of days of employment available to each worker during a particular year provides more complete picture about the employment situation of the people. Rural Labour Enquiry Reports provide the data on days of employment available per agricultural labour in rural labour households as well as rural households during 1974-75 to 1993-94 in Uttar Pradesh.

Total days of employment for men registered a marginal increase from 221 days in 1974-75 to 235 days in 1987-88 and it remained constant in 1993-94. Moreover, there has been a sharp increase in number of days for women during 1973-74 to 1993-94 and marginal increase for the children in agricultural occupation (see Table 6). In the non-agricultural employment, the number of days has increased marginally for both male and children, whereas it increased sharply for women. In toto, marginal increase in the number of days of agricultural employment for men and children on the one hand and sharp increase in the number of working days for female on the other hand occurred during 1973-74 to 1993-94 in Uttar Pradesh. This is an indication of feminization of labour force in the agricultural as well non-agricultural sector. The increased dependency on non-agricultural wages of agricultural female labourer is one of the strategies adopted by the labour households in rural areas to prevent the reduction of their real income.

**Table 6: Average Number of Days of Wage Employment for Agricultural labour (all classes)**

	1974-75	1983-84	1987-88	1993-94
<b>Agricultural Employment</b>				
Male	221	244	235	235
Female	128	191	109	214
Children	182	236	242	189
<b>Non- agricultural Employment</b>				
Male	211	275	208	229
Female	114	216	145	300
Children	228	234	126	250

Source: Rural Labour Enquiry Reports

No doubt, women's entry in wage employment is essentially due to sustained poverty in the rural households and heavy population pressure (Unni, Jeemol, 1988). According to Dixon (1978), "in times of severe economic need women will enter in the labour market as agricultural labourers in other capacities, but when condition improves, they withdraw to their home. Thus in a year of scarcity, when more households are pushed into poverty, one would expect a larger proportion of females to enter in the wage labour force". This is partially reflected in the employment pattern of the state. No doubt, the number of working days for women in both agricultural and non-agricultural activities has increased and there has been diversification of employment pattern towards non-agricultural and self-employment. On the other hand, in an unfavorable monsoon year, the number of days for women has declined at a higher rate than that male, but it did not restrict to increase the number of working days for women in normal years. The existing data for employment pattern of women portrays the increasing trends in the number of days during normal years. This contradicts the views of Dixon (Dixon, 1978, p.118). This may be hypothesized that due to poverty and heavy pressure of population in each and every family and development of infrastructure caused women to enter in both agricultural and self-employment activities. This is clearly reflected in the employment trend in the state. Hence, the increase of number of working days for both men women has increased the income of the family. This has helped the poverty ratio to decline in the state Pradesh in successive plan periods, but the proportion of agricultural labour households living below poverty line is still higher and remained almost constant.

The number of working days for male, female and children under different operations shows that labour requirement for sowing, weeding and harvesting has increased due to the HYV technology (see Table 7). The number of working days of agricultural labourer for male, female and children depend upon the demand and supply of labour force in the market (Unni, Jeemol, 1997). In an unfavorable year of monsoon, the decline of agricultural production causes less demand for labour on the one hand and on the other hand the supply of labour in terms of proportion agricultural labour to total rural labour increases. Hence, the days of employment tends to decline in that particular year and vice-versa in a year of favourable agricultural year. This is clearly reflected through the employment pattern in the state during 1987-88. It indicates that number of working days for women is less in 1987-88 compared to other normal years for both agriculture and non-agricultural activities. However, this does not show any clear picture of the trend of employment during the study period in Uttar Pradesh because it clearly

depends on weather condition of one particular year. Hence, due to non-availability of annual data on employment, the trend of employment scenario is not possible. Moreover, the availability of employment data in Uttar Pradesh clearly shows the number of days of employment for men has increased marginally from 1974-75 to 1993-94 and sharply increased for female.

**Table 7: Employment Pattern of Agricultural Labourers in Different Activities**

Year	Men		Women		Children	
	1987-88	1993-94	1987-88	1993-94	1987-88	1993-94
Ploughing	24	25	NA	1	NA	NA
Sowing	11	25	5	15	NA	14
Transplanting	7	4	4	31	30	15
Weeding	36	49	32	42	22	23
Harvesting	50	56	23	53	56	31
Others	107	76	45	72	134	106
All agricultural operations	235	235	109	214	242	189

Source: Rural Labour Enquiry Reports

Note: NA means not available

Major proportion of their time spent on wage paid agricultural and non-agricultural employment, agricultural labour also engages in self-employment schemes (see Table 8). It is being observed that male agricultural labourer appears to be a trend towards a reduction in dependence on wage labour and increase in employment of other self-employment activities over the period of study. On the other hand, the proportion of days on self-employment fluctuated for the women. In 1987-88, the days of employment for women has reduced sharply for both wage employment days as well as self-employment days. It may be hypothesized that in a particular year due to unfavorable monsoon, the demand for labour has declined and that affected the women category mostly. Because, men being the important earner in the family and he have to work in order to survive the family, so the number of days has not decreased substantially compared to women during 1987-88. In 1993-94, it being a normal year the agricultural production has increased, hence the proportion of employment days for both men and women has increased.

**Table 8: Full Days Employment in various Occupations per Agricultural Labourer  
in Uttar Pradesh**

Year	Men			Women		
	Wage employment	Self employment	Total	Wage employment	Self employment	Total
1974-75	224 (85.49)	38 (14.51)	262 (100.00)	137 (76.96)	41 (23.04)	178 (100.00)
1987-88	235 (79.12)	62 (20.82)	297 (100.00)	109 (83.20)	22 (16.80)	131 (100.00)
1993-94	235 (77.04)	70 (22.96)	305 (100.00)	214 (79.25)	56 (20.75)	270 (100.00)

Source: Rural Labour Enquiry Reports

To sum up, the increasing proportion of rural labour households and rural agricultural labour households to rural households in different successive years in Uttar Pradesh shows the casualization of rural workforce in the state. Hence, they do add to the supply of casual labour and this build up pressure on the rural labour market for agricultural and non-agricultural wage employment. This clearly shows increase in demand for agricultural labour households is proportionately less than the increase in supply of agricultural labour in the labour market in Uttar Pradesh during the study period. Secondly, the demand for agricultural labour has increased marginally, which pushed the number of employment days for men, women and children indicating the positive impact of green revolution. Thirdly, the increasing number of working women as well as number of working days for them reflects feminization of working force in both agricultural as well non-agricultural activities. Fourthly, there has been diversification of agricultural labour force towards non-agricultural and self-employment activities in the state during the study period. Fifthly, in an unfavorable year, the demand for labour has declined and that affected the women category mostly. Whereas, it could not restrict to increase the number of working days for women in normal years.

### 1.6. Real Wages of Agricultural Labourer

The employment pattern provides a partial picture of the living standard of the agricultural labourers in the state. However, daily wage earning accruing to agricultural labourer and its changes over time to determine the total income available for agricultural labourer class. In addition, increase in money wages are considerably eroded by inflation. Hence, in order to understand the real economic condition of labour households, three variables need to be considered. Firstly, daily wage earnings by all

categories of labour. Secondly, the number of days of employment available per worker in an agricultural year. Thirdly, consumer price index of agricultural labour (CPIAL) over the study period. The real annual income is estimated by following a two-way procedure. Firstly, the per capita annual income is estimated by multiplying the number of working days with per day wage rate. Secondly, the annual wage figures are deflated by the CPIAL.

The daily average earning of agricultural labour in agricultural and non-agricultural activities shows that there has been a steady increase of money wage from 1974-75 to 1983-84, whereas it increased sharply from 1983-84 to 1993-94 for men, women and children (see Table 9). The same trend has been observed for men, women and children in non-agricultural activities. However, the average daily money wages of women increased slightly faster than that of men at the state level but the rate of increase of per day wage of children in non-agricultural activities is highest during the study period. Moreover, there has been a gender differential of agricultural wages observed in the state during the study period. The prevalence of such differential is often described as a customary feature of all agrarian economies arising from gender-based specialization of specific farm operations (Jose, A. V., 1988). This differential wage rate has not only increased in recent years at a higher rate than that of earlier years but also sustained over the period of study.

**Table 9: Average Daily Money Wages of Agricultural Labourers**

Year	Agricultural Activities			Non-Agricultural Activities		
	Men	Women	Children	Men	Women	Children
1974-75	3.19	2.47	2.31	3.66	2.15	2.10
1983-84	3.96 (24.13)	2.92 (18.21)	1.61 (-30.30)	5.83 (59.28)	2.24 (4.18)	1.51 (-28.09)
1987-88	9.08 (129.29)	7.04 (141.09)	6.67 (314.28)	10.81 (85.42)	7.05 (214.73)	7.51 (397.35)
1993-94	21.43 (229.29)	16.38 (241.09)	15.36 (94.74)	29.78 (185.42)	17.65 (314.73)	9.82 (497.35)

Source: Rural Labour Enquiry Reports

*Note: The value in parenthesis shows the percent of increase of daily wage over the previous period.*

Agricultural operations like ploughing and also post-harvest operations, which carry higher rewards, are generally performed by male workers. Similarly, operations such as sowing, transplanting and weeding with relatively lower wages are predominantly performed by the women workers (see Table 10). Secondly, the average daily wage rate for agricultural labourers in different activities for both male and female agricultural labour has increased during the study period. This is an indication that the

demand for labour in busy season is higher, which fetch higher wage for them. This is clearly reflected throughout the study period. Moreover, there has been sharp increase of money wages for all categories of activities from 1983-84 to 1993-94 (see Table 10). In toto, there has been not only increasing money wages in different agricultural operations for both men and women but also increasing gender differential in agricultural wages prevailed during the study period.

**Table 10: Average Daily Earning of Agricultural Labourer in Different Operation**

<b>Men</b>						
<b>Year</b>	<b>Ploughing</b>	<b>Sowing</b>	<b>Transplanting</b>	<b>Weeding</b>	<b>Harvesting</b>	<b>Others</b>
1974-75	2.90	3.59	2.94	3.35	3.65	2.99
1983-84	3.93	3.90	5.62	3.00	5.30	1.47
1987-88	8.74	9.38	9.08	8.13	9.26	9.52
1993-94	18.66	25.65	20.31	17.98	22.70	23.12
<b>Women</b>						
1974-75	2.49	2.32	2.23	2.15	2.77	2.23
1983-84	3.50	3.44	5.04	2.36	4.37	0.75
1987-88	7.02	7.11	7.87	6.25	7.11	5.81
1993-94	20.00	20.74	11.84	14.76	17.04	17.04
<b>Children</b>						
1974-75	2.33	2.42	2.62	2.24	2.58	2.10
1983-84	0.44	1.17	4.35	4.20	4.32	1.42
1987-88	10.00	8.77	4.61	5.99	7.88	6.20
1993-94	15.00	NA	NA	NA	14.42	10.85

Source: Rural Labour Enquiry Reports

The increase in money wages for agricultural labourers does not show the real earnings of the people because the increase of money wage is eroded by the rate of change of price. As noted earlier, the movement of money wages and CPIAL determines the real wages. There has been continuous rise of consumer price index at regional level as well as state level during the study period (see Table 11). The money wages for male, female and children are deflated by CPIAL in Uttar Pradesh and the real wages are estimated.

**Table 11: Region wise Rural Consumer Price Index (1970-71=100)**

Year	State	Hill	Western	Central	Bundelkhand	Eastern
1980-81	227.5	208.7	226.4	240.6	251.0	222.6
1981-82	240.6	224.7	222.0	244.9	255.3	237.5
1982-83	260.8	239.7	261.0	265.7	272.6	259.7
1983-84	286.2	263.3	283.1	287.6	283.3	291.0
1984-85	289.6	270.0	292.8	295.4	307.1	203.8
1985-86	312.3	288.6	317.9	320.6	344.9	301.0
1986-87	331.00	311.9	331.0	337.6	344.7	328.2
1987-88	365.6	334.0	360.6	374.5	378.2	370.4
1988-89	402.0	359.8	397.8	413.6	442.2	401.5
1989-90	419.0	387.2	414.4	430.4	473.0	415.2
1990-91	474.9	435.6	474.3	499.0	519.2	464.7
1991-92	560.8	487.8	556.7	589.4	587.0	559.2
1992-93	589.0	523.9	584.4	610.8	627.5	588.5
1993-94	638.5	565.7	624.3	670.2	707.1	641.2
1994-95	696.9	627.0	694.7	736.9	767.4	681.0
1995-96	763.6	688.6	759.8	802.8	827.0	749.7
1996-97	845.6	749.6	838.2	885.9	878.0	844.9
1997-98	920.4	797.2	920.1	968.5	988.8	908.7
1998-99	1009.3	881.7	1007.2	1054.6	1033.9	1007.9

Source: Rural Consumer Price Index of Uttar Pradesh, Economics and Statistics Division, State Planning Institute.

The real wages for men and women in agricultural activities has declined from 1974-75 to 1983-84, whereas it increased again both for men women from 1987-88 to 1993-94 (see Table 12). Moreover, similar trend has been observed for men, women and children in non-agricultural activity during 1974-75 to 1993-94. The existing data indicates that the real wages of men are always higher than that of women. In addition, the percentage of increase of money wage and number of days of employment for women is higher than that of men, but the percentage of increase of real wages for women is always less than that of male except 1987-88.

**Table 12: Average Daily Real Wages of Agricultural Labourers**

Year	Agricultural Activities			Non-Agricultural Activities		
	Men	Women	Children	Men	Women	Children
1974-75	1.97	1.52	1.42	2.26	1.32	1.29
1983-84	1.38 (-42.05)	1.02 (-49.11)	2.46 (42.14)	2.04 (-10.70)	0.78 (-69.26)	0.53 (-145.24)
1987-88	2.48 (44.28)	1.93 (47.21)	1.82 (-34.83)	2.96 (31.11)	1.93 (59.41)	2.05 (74.32)
1993-94	3.36 (26.00)	2.57 (24.94)	2.41 (24.16)	4.66 (36.60)	2.76 (30.24)	1.54 (-33.56)

Source: Estimated from Rural Labour Enquiry Reports.

Note: The value in parenthesis shows the percent of increase of daily real wages over the previous period.

### **Annual Money and Real Wage Earnings per Agricultural Labourer**

The annual money wage earnings per agricultural labour in rural households have been computed both in money and real terms by multiplying the average daily wage earnings (money & real) by the full days of agricultural employment available per worker in different years. The annual average money wage has increased for both male and female during the study period. Moreover, the increase in annual money wage rate was sharper during 1983-84 to 1987-88 and again 1987-88 to 1993-94 (see Table 13). The annual real wage earning of both male and female has increased at a much slower pace than that of money earnings. Moreover, it fell between 1974-75 and 1983-84 and rose again in 1987-88 and 1993-94 at the state level for both men and women. The increase in prices and fall in days of agricultural employment per workers between 1974-75 to 1983-84 led deterioration in the annual real wage earnings in 1983-84. However, the rise in agricultural output together with the increase in availability of employment for both men and women appear to have boosted the real wages.

**Table 13: Annual Money and Real Wage Earning of Male and Female**

Year	Men		Women	
	Money Wage	Real Wage	Money Wage	Real Wage
1974-75	704.99	434.37	316.16	194.80
1983-84	966.24	337.61	557.72	194.80
1987-88	2133.8	583.64	767.36	209.89
1993-94	5036.05	788.73	3505.32	454.67

Source: Rural Labour Enquiry Reports

### **Trend of Money and Real Wages**

The index number of money wages of agricultural labour has been collected from various issues of Quarterly Bulletin of Statistics and the trends of real wage are estimated through deflating by CPIAL. The index of wage on agricultural labour shows continuous increase during 1981-82 to 1998-99 in Uttar Pradesh (see Table 14). However, with a close investigation to the trend of real wages shows quite different picture during the same period. There has been marginal increase of real wages from 1982-83 to 1983-84. The trend of real wages declined during 1985-86 to 1987-88. Similar declining trend also occurred during 1990-92, again in 1994-95 to 1996-97. This declining trend of real wages may be reflection of unfavorable weather condition vis-à-vis low growth of agricultural production and higher increase of consumer price index during the same period in the state. In toto, the real wages of agricultural labourer in the state has increased during the study period, though the increase has not been a sustained one.

**Table 14: Index Number of Money Wage, Real Wages and CPIAL during 1981-99**

Year	Wage	CPIAL	Real wage
1981-82	261.7	240.6	108.77
1982-83	300.4	260.8	115.18
1983-84	331.7	286.2	115.90
1984-85	363.0	289.6	125.35
1985-86	402.4	312.3	128.85
1986-87	450.3	331.0	136.04
1987-88	492.3	365.6	134.66
1988-89	540.5	402.0	134.45
1989-90	620.3	419.0	148.04
1990-91	790.6	474.9	166.48
1991-92	858.6	560.8	153.10
1992-93	946.2	589.0	160.65
1993-94	1029.6	638.5	161.25
1994-95	1150.1	696.9	165.03
1995-96	1246.2	763.6	163.20
1996-97	1362.9	845.6	161.18
1997-98	1637.7	920.4	177.93
1998-99	1775.1	1009.3	175.87

Source: Index Number of Consumer Prices in Uttar Pradesh

We have estimated the log-linear growth rates of money wages, CPIAL and real wages during 1981-82 to 1998-99 as well as for two sub-periods, viz, 1981-82 to 1989-90 and 1990-91 to 1998-99. The CAGR of money wage is always higher than that of CPIAL and real wages (see Table 15). However, the CAGR of money wage in eighties is higher than nineties, whereas the CAGR of CPIAL in eighties is lower than that of nineties. This reflects in the CAGR of real wages, i.e., the CAGR in nineties is lower than that of eighties (see Table 15). Moreover, the CAGR of real wages in the nineties has been decelerating (see Table 16). In toto, the low and decelerating CAGR of real wages of agricultural labour in nineties is due to high growth of CPIAL and low growth of money wages compared to eighties. The higher growth rate of CPIAL indicates the increasing cost of living of agricultural labour on the one hand and low CAGR of money wage reflects low increase of earning on the other hand. Hence, the combined impact of high cost of living with low earning caused the real wage to decline in nineties.

**Table 15: CAGR of Index of Money, CPIAL and Real Wages in Uttar Pradesh**

Year	Money wage	CPIAL	Real Wage
1981-99	12.07* (61.64)	8.98* (46.18)	2.79* (13.17) D
1981-90	11.85* (22.05)	7.47* (24.40)	4.08* (9.60) ND
1991-99	10.96* (24.38)	9.05* (34.89)	1.76* (4.192) D

Source: 1. For Index of Money Wage, Quarterly Bulletin of Statistics

2. For CPIAL, Rural Consumer Price Index of U.P.

Note: The values in the parenthesis are t-values, \* indicates 1 percent level of significance.

**Table 16: Estimated Results of Deceleration for Real Wages of Agricultural Labourers**

Year	Value Co-efficients			Adj. R <sup>2</sup>
	Constant	B co-efficient	C co-efficient	
1981-99	4.63* (159.66)	0.049* (7.02)	-0.00116* (-3.208)	0.94
1981-90	4.68* (103.20)	0.0245 (1.29)	0.0014 (0.83)	0.90
1991-99	5.05* (10.87)	0.0109* (5.45)	-0.0097* (-4.89)	0.65

Note: The values in the parenthesis are t-values, \* indicates 1 percent level of significance. For testing deceleration of real wages, we have taken the equation  $\log Y = a + bT + cT^2$ . 'D' indicates deceleration, whereas ND indicates no deceleration. For deceleration, both b and c should be statistically significant and 'c' must be negative. Other wise, it is considered as ND.

### 1.7. Indebtedness of Agricultural Labourer in Uttar Pradesh

Though the indebtedness is not a direct factor like employment and wages for determining the standard of living, yet it determines the relative strength of the economic condition of the agricultural labourer. It shows the excess of expenditure over the earnings in a particular year of the agricultural labourer. Agricultural labourer found it necessary to borrow heavily to meet their requirements (see Table 17). The magnitude of the borrowings has been increasing over the period and still 40 percent of agricultural labourers are indebted by 1993-94. They mostly depend on non-institutional credit to meet the need of household's consumption, marriage and other ceremonial expenditures.

**Table 17: Incidence of Indebtedness among Agricultural Labour Households (All Classes)**

Year	Percent of indebted agricultural households to Rural Households	Average debt per indebted households (Rs.)	Sources of Debt (in percent)		Purpose of debt (in percent)			
			Institutional	Non-institutional	Consumption	Marriage etc.	Purchase of land	Productive purposes
1974-75	69.0	698	27.50	72.49	45.17	24.89	20.57	9.35
1977-78	47.6	678	9.89	90.10	42.31	30.60	13.90	13.17
1987-88	30.4	2936	22.29	77.10	25.41	33.20	3.01	28.37
1993-94	40.2	3221	38.28	61.71	32.59	27.84	9.12	30.43

Source: Rural Labour Enquiry Reports

## CHAPTER II

### Determinants of Wages and Employment of Agricultural Labourers in Uttar Pradesh

#### 2.1. Introduction

There has been an increase in the number and proportion of agricultural labourers to total main workers during the post-green revolution period in rural Uttar Pradesh. According to the Census estimates, agricultural labourers as a proportion to total main workers increased from 22.21 percent in 1971 to 29.29 percent in 2001 in the state (Government of India, 2001). Most remarkably, the proportion of agricultural labour households to rural labour households constitutes nearly 80 percent and remained almost constant throughout the post-green revolution period. However, one fifth of the rural households owns no land or possesses any other durable assets in the state.

The employment pattern of agricultural labourer shows positive trend over the years in the state. There has been marginal increase of number of working days for male along with declining of number of days for children on the one hand and sharp increase in the number of working days for women during 1974-75 to 1993-94. The money wages engaged in agricultural activities for both men and women has increased during 1971-2000. Moreover, the percentage of increase of money wage for both agricultural and non-agricultural activities for women has increased at a higher rate than that of men. This may appears an improvement in the economic conditions of the agricultural labourer. But, the fact that the absolute female average earning has far below than the male earning and the difference has been maintained throughout the study period. However, the trend of real wages of agricultural labour has decelerated since eighties as discussed in the earlier chapter. The slow growth of real wage in nineties is reflected due to the combined impact of higher rate of increase in the cost of living with low rate of increase in money wages compared to eighties. This is an indication of less than proportionate increase of demand for agricultural labour than that of supply of labour in the market. This creates a serious matter of concern in a growing population vis-à-vis agricultural labour in the state like Uttar Pradesh.

The pertinent question can be raised, why there has been a decline of growth rate of real wage in nineties compared to eighties & seventies, though the number of working days has remain almost same during the study period. In order to answer these questions, it is important to refer the moments of various factors responsible for determining the

real wages and employment pattern of agricultural labourers. The important factors, viz., growth of agricultural products, investment in agriculture, demand and supply of agricultural labour, role of labour organization and out migration etc. are responsible for determining the wage rates. In other words, is it due to excess increase of supply of labour force in the market or is there any decline of demand for labour in nineties or is there any further policy reforms needed to improve the wage rate or is there any decline in investment in agriculture or the contractual relation between landowners and labourers still exist in rigid forms or out migration has declined or agricultural production has declined?

Given this scenario, an attempt has been made to explain the various factors; those determine the real wages as well as employment pattern of agricultural labourers in the state.

The present paper has been divided into five sections. Section I, II discuss the relevance and debate on determinants of employment and real wages of agricultural labourers. Sections III and IV are designed to discuss the extent of poverty, the gap between actual and potential employment pattern, factors determining real wages and employment of agricultural labourers. Finally, section V discusses the conclusions arising out of the study.

## **2.2. Debate on determinants of Wages and Employment Pattern of Agricultural Labourers: Some Evidences**

The factors determine the increase or decrease of employment and wages of agricultural labourers are the mixture of demand and supply of labour force in the rural economy. No doubt, increase in irrigation or cropping intensity or productivity has positive impact on wage employment vis-à-vis wage rate. However, this may be more effective, when a smaller proportion of rural labour force dependent on wage employment or with higher non-agricultural wage rates than an area where vast masses of tiny peasants and the landless depend on the labour market and the non-agricultural sector is too small to absorb much of it. This may not happen if the farmers in the former area resort to using a lot of labour saving machinery or the labour in the latter organizes themselves for group bargaining. If the former is characterized by substantial and widespread under employment it would dampen or block entirely the rise in the wage rate.

The determination of agricultural wages deals with the analysis of supply and demand framework the rural labour market. Rao (1972) observed that the labour market in agriculture is characterized by a perfectly elastic supply of labour at subsistence wage,

excepting a few region with HYVs, where the supply curve appears to be upward sloping, with the result that seasonal or year to year shifts in demand for labour get reflected more in changes in employment than in wages, only substantial shift in demand, such as those brought about by the HYVs are capable of raising wages. Bardhan (1973) found that irrigation (net sown area irrigated as a demand variable) and proportionate size of the agricultural labourers to total worked force (supply variable) comes out as major important variables in explaining inter state wage variations. The agricultural wage rate responds positively to variation in the net irrigated area and negatively with size of agricultural labourers. Lal (1976) verified the determination of real wage of agricultural labour in the demand and supply framework in a different manner. However, he used the regression analysis with the percentage change of the real wage rate as the dependable variable and percentage increase in cereal output representing the demand variable and percentage increase in the male agricultural labourers representing the supply side, as the two independent variables. Jose (1978) argued money wages does not show a clear indicator of real earnings of agricultural households. Real earnings of an agricultural labour household are primarily dependent on three variables: (1) the agricultural wage rates; (2) quantum of employment per year available per worker; (3) the price of wage goods consumed by members of the households. There is considerable interdependence between these three variables and they would mean that an increase in wage rates need not reflect an increase in the income level of agricultural labour households as it could also be accompanied by decline in the annual availability of employment and /or an increase in the price of wage goods. However, he pointed out that in a demand and supply framework, the involvement of women and children should be included in the supply side and several crucial factors such as cropping pattern, coverage of irrigation, cropping intensity be included in the demand side.

So far so well, the above mentioned studies found that the labour market is fairly competitive and wage responsive to the demand and supply of labour. However, a number of other studies found that the structural rigidities of the labour market rendering demand and supply of labour rather inelastic to the wage rates and wage rates some what unresponsive to the variations in the demand and supply of labour (Mishra, V.N., 1970). The supply side of the labour force is unresponsive to the variation in wage rates mainly due to two reasons, i.e., the size of active age group of population and social attitudes to work in the society (Papola and Mishra, 1980). The supply of female labour is unresponsive to changes in wage as a matter of social rigidities. In addition, another

social institution introducing the rigidities in the functioning of the labour market is the prevalent practice of attached labour under which workers attached to a particular employer are not able to affect inter employer mobility nor are their wage rates easily flexible. Similarly, the demand for agricultural labourers became unresponsive to the changes of wage rate in rural labour market. The demand for hired labour, which is expected to be influenced by the wage rates, may actually be invariant and may not vary inversely with wage rates, particularly in peak seasons, when certain agricultural operations have to be completed in a given period of time. Secondly, workers engaged in agriculture are not a reliable proxy for the demand for labour, as a sizable part of their labour is not actually required there. Either it remains unutilized or generates a marginal product lower than the on going market wage rate (Papola and Mishra, 1980). However, they have argued that absolute size of labour force would not serve as an indicator of variations in the labour supply. Because, the supply of labour in a district is obviously dependent on the size and structure of population, which would vary among districts in the first instance due to differences in area and habitation pattern. Therefore, ratio of workers to population or to cultivated area as an alternative and better indicator for determination supply of labour force. Worker-land ratio is an amalgam of supply and demand forces, as it reflects both the pressure of population on land and employment in agriculture. In addition, they have opted labour force participation rate as an indicator of relative labour supply in various districts of Uttar Pradesh. However, the availability of surplus labour which normally nullifies the usual relationship between productivity and wage rate. For example, wages of agricultural labour need not to increase so long as surplus labour is available to work at the going wage rate. Another variable that would influence the wage rate from the supply side is the extent of employment opportunities outside agriculture. A larger scope for working outside agriculture in rural areas would tend to reduce the supply of labour to agriculture and thereby raise the supply price of labour.

On the demand side, the yield level may influence the wage rates positively. But this relationship is not direct always because the existence of surplus labour and mechanization in agriculture. Cropping intensity and irrigation as factors in yield increase may have a positive influence on demand side and wage rate; while mechanization affect negatively the demand and hence wages. Cropping pattern has direct influence on the demand for labour and hence on wage rate. The pattern of distribution of land holding is a factor, which acts on supply, demand and wages in numerous ways. A high concentration of land holdings in the hands of a few cultivators

raises the demand for hired labour but at the same time it also implies a large population of agricultural labourers and small holders who would supply their labour on wages. The skewed distribution would also lead to an imbalance in the bargaining structure, where a few large land holders can play the major role on labourers against each other to keep the wage level low. In the explained model, they observed that three factors which affect significantly the male wage rate, i.e., surplus labour in agriculture, work opportunities in the non-agricultural sector in the rural areas and pattern of land distribution.

Jose (1988) took the net domestic product in agriculture at constant price and converted into index number with 1970-71 as base year and matched against the index number of real wage rates during the same corresponding year. However, he pointed out that the single most important variable influencing the movement of real wage rates has been the level of agriculture output in different state. In addition, the key variables conditioning the rural market and wage rate have usually been identified as productivity and to the relative sizes of the agricultural and non-agricultural labour force (Sarmah, S., 2002). However, productivity is singled out to capture the influence of labour demand and proportion of agricultural labour in total labour force is taken as an important supply side variable and occupational diversification away from agriculture restricts the supply of agricultural labour and is likely an upward pressure on agricultural wages.

### **2.3. Extent of Rural Poverty by Households Type: Regional Analysis**

The standard of living of agricultural labour household can comes into sharper focus, when we analyse the incidence of poverty by broad categories of households. This analysis for all regions of Uttar Pradesh is based on the NSS 50<sup>th</sup> and 55<sup>th</sup> round data on consumer expenditure to observe the change of incidence of poverty for various category of labour. The survey distinguishes five household types, i.e., self-employed in agricultural occupations, self-employed in non-agricultural occupations, agricultural labourers, other labourers and other rural households. The incidence of poverty (head count ratio) in each of these household types at the state and regional levels is estimated for both 1993-94 and 1999-2000 using NSS data.

The incidence of poverty turns out to be highest among the agricultural labour households in all regions as well as the state level (Table 18). Though, the poverty ratio among agricultural labour has declined from 62.25 percent in 1993-94 to 51.42 percent in 1999-2000, yet agricultural laborer stands as largest group of poverty stricken category except other labour in all regions of the state. However, the second largest segment of poverty households is formed by households of other labour category

followed by self employed in non-agricultural sector. The incidence of poverty among agricultural labour seems to be higher than self employed in agriculture in all regions of the state. Agricultural labour households not only report the highest incidence of poverty but also record sharp variations in different regions of the state. The problem was severe in southern and eastern region, where 92.20 percent and 70.34 percent of agricultural labour were below the poverty line in 1993-94. Dramatically, the poverty ratio has come down to 45 percent for agricultural labourer during 1999-2000. Most importantly, central and eastern regions of the state are severely affected, where 63.23 and 58.59 percent of the total agricultural labourer live below the poverty line respectively. However, still 51.42 percent of agricultural labourers are below poverty line in 1999-2000 in the state.

**Table 18: Incidence of Poverty by Households type in different regions of Uttar Pradesh**

Regions/ Year	1993-94					
	Self employed Agricultural Labourer	Self employed Non- agricultural Labourer	Agricultural Labourer	Other Labour	Other Households	Rural labour
Western	29.96	34.80	42.93	32.70	29.39	29.59
Central	45.20	49.25	68.32	47.34	49.10	50.20
Eastern	43.52	46.34	70.34	60.02	46.16	48.60
Southern	59.01	67.51	92.20	95.86	69.17	66.74
Uttar Pradesh	37.04	43.44	62.25	50.00	41.75	43.18
1999-2000						
Western	16.95	25.90	34.32	28.26	12.15	21.94
Central	34.79	44.53	63.23	68.55	26.07	42.50
Eastern	27.85	38.66	58.59	47.21	29.41	36.85
Southern	19.16	13.71	44.92	15.93	9.15	21.62
Uttar Pradesh	24.94	34.40	51.42	38.19	22.25	31.97

Source: NSSO 50<sup>th</sup> and 55<sup>th</sup> Rounds on Consumer Expenditure

The higher incidence of poverty for agricultural labour households indicates that the earnings of the majority of these households, whose principal source of livelihood is wage employment, are too low to upgrade the standard of living or to reach the poverty line. Here, one can assert that it could be due to low employment or low wages or lack of enough assets or combination of all the factors of the agricultural labourer households which leads to live below the poverty line. Hence, the possible ways to improve the conditions of the agricultural households by (a) raising wages; (b) increase in the days of employment; (c) improving the productivity of existing assets; (d) creation of new assets. However, here an attempt is made when agricultural labourers are given full employment status by increasing their number of working days, whether their potential income would

be enough to meet minimum household expenditure or reach to the poverty line. Data relating to the employment of men and women of agricultural labourer portrays increasing trend of working days and number of days declined due to want of work over the period. However, number days not worked for women category has declined drastically from 208 days in 1987-88 to 72 days in 1993-94 (Table 19). The number of days not worked due to other reasons such as illness, ceremonies remains constant for both category of labour over the study period.

**Table 19: Average Annual number of days and average daily earning of men and women in agricultural occupation in Uttar Pradesh for various years**

Items/year	Men			Women		
	1974-75	1987-88	1993-94	1974-75	1987-88	1993-94
No. of days employed	262	306	307	178	131	273
No. of days not worked due to want of work	59	27	34	157	208	72
No. of days not worked due to other reasons	29	32	24	30	23	20
Wages (average daily in Rs.)	3.19	9.08	21.43	2.47	7.04	16.38

Source: Rural Labour Enquiry Reports

The actual earnings of rural households are lower than the required income, which is needed to reach the poverty line. Low wages mainly due to low labour productivity and unemployment or under-employment are the major factors underlying their low annual earning compared to the workers in other sectors. Here, an attempt is made to find out the difference in the required income and actual income or potential income of the agricultural households over the period to acquire whether the gap can be minimized through the twin objectives of increasing employment vis-à-vis wage rates. In other words, is it possible to raise the income of the agricultural households to reach above poverty line by increasing the number of working days keeping the wage rate constant? However, it is observed that the required income of the agricultural households is quite larger than the actual income derived from the actual days worked with the existing wages in the state over different periods (Table 20). The estimated annual earnings in each households at the state level is Rs.10,020, whereas the required income needed for the agricultural labour households to reach the poverty line is Rs. 15,475, which is 1.54 times higher than the actual income. Similarly, the gap between required income and potential income/maximum potential income has remained quite larger over the study period in the state. It shows that by itself ensuring full employment at the prevailing wages, important as it will be in raising their living standards will yet be inadequate in lifting them above the poverty level. However, it may be assumed that the

their standard of living can be uplifted by creating new assets through overall agricultural development by massive investment in irrigation, other rural development projects and fixing their wage level higher.

**Table 20: Required and Actual/Potential Income of Agricultural Labourers in Uttar Pradesh**

Year	Required Income <sup>‡</sup> (Rs.)	Actual and Potential Income			Ratios		
		Actual Income <sup>§</sup>	Potential Income <sup>**</sup>	Maximum Potential Income <sup>††</sup>	Required/Actual	Required/Potential	Required/Maximum Potential
1974-75	2854.25	1382.76	1858.34	2081.80	2.06	1.54	1.37
1987-88	9652.89	3532.97	3990.55	4334.72	2.73	2.42	2.23
1993-94	15475.18	10020.65	11195.02	11867.47	1.54	1.38	1.30

Source: Estimated from various issues of Rural Labour Enquiry Reports.

#### **2.4. Factors Determining Real Wages and Employment of Agricultural Labourers**

##### **Growth of Agricultural Output**

The agricultural growth rate is positively related with agricultural wages and employment (Bardhan, 1973; Lal, 1976; Dev, 1988; Sarmah, 2002). The higher growth rate leads to high income of the producers and high demand for agricultural labourers, which eventually enhances the work intensity and number of working days. The reverse takes place, when there has been slow agricultural growth in the state. However, Parthasarathy (1987) showed that regions with low growth rates in labour productivity are characterized by higher incidence of rural poverty, higher unemployment and low wages. Dev (1988) revealed a strong negative relationship between the growth of labour productivity and incidence of poverty of agricultural labourer households.

The reasons for the decline of real wages of agricultural labourers despite special efforts were made to increase women's work is associated with the over all decline in the

<sup>‡</sup> Required annual income of agricultural household = poverty line of particular year (in terms of per capita consumption expenditure) X average household size X 12 months

<sup>§</sup> Actual earnings of agricultural labour household = it is the sum of annual earnings of men, women and children

Annual earnings of men = average number of earning men X number of days worked by men as paid and self employment X average daily earning of men in agricultural occupations. Similarly, annual earning of women and children are estimated. This is usually known as income from the number of days actually worked.

<sup>\*\*</sup> Potential income of agricultural households is estimated by adding the number of days not worked due to want of work with actual number of days worked. This is known as income at full employment, i.e., after removing unemployed days.

<sup>††</sup> This is known as income at full employment + the potential income without illness and ceremonies.

compound annual growth rate (CAGR) of both foodgrains and non-foodgrains in the nineties compared to seventies and eighties in Uttar Pradesh. The CAGR of both foodgrains and non-foodgrains in nineties has declined compared to even before the introduction of green revolution technologies (Table 21). However, massive agricultural development through increase in productivity, intensity etc. could lead to a higher demand of agricultural labourer and eventually higher employment with high remunerations.

**Table 21: CAGR of Index Number of Area, Production and Yield of Foodgrains and Non-Foodgrains in Uttar Pradesh during 1950-2000**

Periods	Foodgrains			Non-Foodgrains		
	Area	Prod	Yield	Area	Prod	Yield
1950-51 to 1970-71	0.65	2.55	0.95	2.19	3.16	1.88
1970-71 to 1990-91	0.23	3.05	2.88	1.77	3.43	2.82
1990-91 to 2000-2001	-0.14	1.78	1.91	3.03	2.65	-0.38

Source: Various Volumes of Statistical Abstract and Statistical Diary of Uttar Pradesh.

Note: CAGR obtained by fitting the standard form  $\log Y = a + bt$  to the time series of the area and its components by Ordinary Least Square (OLS).

### Agricultural Investment

The public investment in different heads of agricultural and allied activities shows a diversified path of development in Uttar Pradesh during different plan periods. The proportion of expenditure to total expenditure in agriculture and allied activities has increased marginally during nineties; whereas the proportion of expenditure on rural development has marginally decreased in 8<sup>th</sup> five year plan. On the other hand, the proportion of total expenditure on irrigation and flood control has sharply increased during seventh and eighth five-year plan (Table 22). Though the plan expenditure in irrigation and flood control has increased during seventh and eighth five-year plan, steel agricultural output growth has declined in nineties compared to eighties. This might be due to environmental degradation in the agricultural sector of the state. The declining state of agricultural output has caused the declining demand of labourers and ultimately caused real wages and employment to decline.

The main thrust of agriculture development is not only realization of self sufficient but also increasing productivity levels, which enable a fair return for labour. In this regard, state neither achieved a sustained higher growth of agriculture nor any significant reduction took place in poverty and unemployment. Several factors, such as poor investment, poor infrastructural development, poor availability of agriculture inputs, lack of adequate qualitative irrigation facility etc. caused declining growth of agriculture in recent years. However, agriculture development is checked by degradation of land due to soil erosion, saline, waterlogging etc. Therefore, 74.48 lakhs hectares of degraded land lying unproductive, which needs special attention (Government of Uttar Pradesh, 2002).

**Table 22: Public Sector Investment by Major Heads of Development in Different Five-Year Plans in Uttar Pradesh (Rs. in lakhs)**

Plans	Agriculture and Allied	Rural Development	Co-operation	Irrigation and Flood Control
1 <sup>st</sup> Plan 1951-56	2356 (15.36)	851 (5.55)	131 (0.85)	3871 (25.24)
2 <sup>nd</sup> Plan 1956-61	2411 (10.33)	2764 (11.84)	414 (1.77)	4110 (17.61)
3 <sup>rd</sup> plan 1961-66	4983 (8.89)	4876 (8.70)	806 (1.44)	11917 (21.26)
3 annual plans 1966-69	3025 (6.64)	2251 (4.94)	199 (10.44)	13095 (28.76)
4 <sup>th</sup> plan 1969-74	7794 (6.69)	3367 (2.89)	2127 (1.82)	29381 (25.21)
5 <sup>th</sup> plan 1974-79	39310 (13.5)	10927 (3.76)	3227 (1.11)	68290 (23.50)
6 <sup>th</sup> plan 1980-85	36081 (5.5)	45800 (6.9)	8226 (1.2)	325799 (49.40)
7 <sup>th</sup> plan 1985-90	100663 (8.4)	106211 (8.9)	20901 (1.7)	492533 (41.20)
8 <sup>th</sup> plan 1992-97	203165 (9.2)	189915 (8.6)	10600 (0.5)	1033385 (47.00)
9 <sup>th</sup> plan 1997-2002	277656 (9.53)	416776 (14.30)	32077 (1.10)	383211 (13.15)

Sources: Various Five-Year Plan and Annual Plan Documents, Vol.1, Government of Uttar Pradesh. Note: Figures in the parenthesis shows the percentages to total expenditure.

The primary objective of rural development programme is to alleviate rural poverty vis-à-vis unemployment and under-employment and to improve overall standard of living of the rural poor. This has been designed through different rural development programs to create productive assets of the agricultural labourer households. Different productive schemes such as fishing, dairying, animal husbandry, plantation, forestry etc. are provided to raise employment and wage rate of working class, which will have positive indirect impact on agricultural labourer to raise the employment and wage coming from agriculture. However, co-operative movement owes its origin to agriculture and allied sector to which it still stands committed. In this system, the poorer section including agricultural labour, small and marginal farmers get their reasonable requirements of credit worthy occupations at reasonable rates of interest and on easy terms of conditions. However, 8<sup>th</sup> and 9<sup>th</sup> five year plan portrays nearly 7500 inactive co-operative societies were deregistered. Irrigation is an inevitable input to increase productivity through multiple cropping and HYVs inputs. The development of both ground and surface irrigation is essential to cover all parts of the state. Nearly, 65 percent of the net cropped area is irrigated by all sources in the state. Therefore, it is essential to identify the in the productive regions and unreachd irrigated areas, where irrigation can plays major role for enhancing productivity, cropping intensity and over all development of the poorer section in the state.

#### **Wage Act of Agricultural labourers**

The various wage acts in the Indian labour legislation are important for protecting the interest of the Indian agricultural labourers. Despite as many as 12 legislation and 14 welfare schemes operating in the country, the plight of agricultural labourers is pitiful.<sup>##</sup> The legislation, unless strongly backed by workers organizations on issue basis, is never enforced. In fact, Union Ministry of Labour while analyzing the effectiveness of existing

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<sup>##</sup> Acts

1. Minimum Wages Act, 1948, . 2. Plantation Labour Act, 1951, 3. The Payment of Wages Act, 1936 , 4. The Employees State Insurance Act, 1948, 5. The Maternity Benefit Act, 1961, 6. The Payment of Gratuity Act, 1972, 7. The Personal Injuries (Compensation) Act, 1963, 8. The Employees' Provident Fund & Miscellaneous Provisions Act, 1952. Except Minimum Wages Act 1948, only a few provisions of the above Acts are applicable to agricultural workers. Besides these, certain provision in other Acts, viz., (1) Contract Labour Act, 1970 (2) Equal Remuneration Act, 1976; (3) Inter State Migrant Workmen (Regulation of Employment and Conditions of Service) Act, 1979 and (4) Child Labour (Prohibition and Regulation) Act, 1986 give protection to the agricultural workers.

Acts and Welfare Schemes in its Annual Report for the year 1999-2000 pointed out that the existing Acts and Welfare schemes have not adequately protected the interest of agricultural workers. The ministry has envisaged alternative strategies such as creating 'Welfare Fund' by enacting yet another comprehensive legislation for agricultural workers. Sadly, the preparation is continuing but it is never tabled in Parliament. Similarly, the state governments are equally apathetic towards the protection of agricultural labourers. However, the actual wages prevailing in the states are more or less equal to the wages fixed by the state, making the law redundant.

Here, an attempt is made to analyse how the differential wage structure causes diversification of labour force in inter state as well as inter activities. The average daily wage rate varies in various agricultural activities at all India as well as different states level. However, one ploughman receives Rs.70.36 per day, while a person involves in weeding gets only Rs.52.79 per day (Table 23). This differential wage rates not only spreads in agricultural but also allied and non-agricultural activities. For example, per day wage rate of well-digging, carpentry and blacksmith is Rs.82.44, Rs.104.75 and Rs. 82.47 respectively. Similarly, situation also prevails in Uttar Pradesh. This is the obvious reason for diversification of labour force from low wage activities to high wage paid activities. However, this diversification of labour force would reduce the dependence on wage employment but the fact that the low wage rate for wage employment does not enhance their standard of living to reach above the poverty line.

**Table 23: Average Daily Wage Rates for Agricultural and Non-Agricultural Occupation in Rural India (Men Category)**

States	Plough-ing	Sow-ing	Weed-ing	Trans-planting	Harve-sting	Well-digging	Carpenter	Blacksmith	Tractor Driver	Unskill ed labour
AP	65.49	50.47	40.21	57.66	45.14	-----	80.73	71.24	69.04	48.99
Assam	63.78	53.95	53.64	58.56	53.64	-----	91.37	65.00	-----	52.48
Bihar	55.38	53.13	47.10	53.65	49.95	56.33	90.13	80.39	68.61	48.39
Gujarat	66.07	62.03	51.92	49.40	54.71	75.33	123.60	-----	79.17	52.00
Harya Na	83.20	84.11	80.22	85.88	89.38	81.40	138.42	117.0	107.33	86.25
HP	101.00	101.00	-----	-----	-----	-----	170.67	158.0	-----	98.44
J &K	122.14	107.50	-----	-----	106.00	-----	166.67	121.6 7	-----	98.06
Karnat aka	58.59	53.45	50.50	51.61	52.04	73.42	98.06	78.10	71.04	45.08
Kerala	240.57	172.50	-----	-----	-----	185.50	189.52	164.0 1	-----	139.50
MP	48.28	44.37	40.76	35.19	47.65	51.47	78.91	65.53	66.78	37.49
Mahara Stra	63.21	53.72	50.01	62.76	58.65	67.78	94.38	76.90	72.68	47.48
Manip ur	60.56	50.00	50.00	58.89	-----	-----	77.78	67.86	95.63	46.11
Mehga Laya	67.41	63.75	66.11	64.58	-----	-----	95.56	74.44	-----	57.22
Orisaā	54.78	48.56	52.29	46.85	45.56	67.60	95.00	85.63	104.45	43.54
Punjab	-----	-----	79.29	79.03	86.20	-----	154.00	154.0	91.29	82.16
Raja Sthan	80.00	78.13	92.00	-----	-----	104.17	155.00	-----	90.52	71.62
Tamil Naddu	113.33	71.39	-----	67.62	64.41	104.58	116.11	104.6 2	98.57	69.31
Tripura	60.00	60.00	60.00	60.00	60.00	-----	90.00	48.33	90.00	60.00
UP	60.80	57.77	55.74	54.79	54.88	71.72	109.98	94.16	64.75	56.79
West Bengal	78.49	54.20	51.43	53.73	51.49	-----	88.36	65.50	102.35	50.52
India	70.36	60.33	52.79	55.18	57.97	82.44	104.75	82.47	77.14	57.25

Source: Indian Labour Journal, Labour Bureau, Ministry of Labour, Government of India, Chandigarh, October, 2002

However, the differential wage structure is also depends on the relative strength of labour organizations in various states. The problems involved with wage rates in different agricultural, allied and non-agricultural activities at the states level are not different from the national level. The wage rate of allied and non-agricultural activities is more than that of agricultural activities in all states (Table 23). The per day wage of a particular activity differs from state to state. It is noticed that per day wage of labourer in different agricultural and non-agricultural activities in Uttar Pradesh is lower than that of national averages and many states. In the context of state wise comparison, the states, viz., Kerala, Tamil Nadu, Rajasthan, Himachal Pradesh and Haryana have higher wages to various agricultural, allied and non-agricultural activities. This is due to strong

bargaining power of the labour organization, which fixes higher wages, eventually leads to the overall better standard of living of this class. No doubt, the low wage rate for various activities in Uttar Pradesh is lower than national level due to excess supply of labour force than the demand for it in the market. However, considering the rigidities prevail in the market, lower wage rate is also due to poor bargaining power of the labour organization in the state. However, enhancing the intensity of work in allied and non-agricultural activities would demand more labour force, whereas better bargaining power for fixation of wage employment of agricultural labourer would definitely help them to reach above the poverty line.

### CHAPTER III

#### Summary and Conclusions

This paper highlights the economic condition of agricultural labourer during 1971-2001 in Uttar Pradesh. The major findings of the study are summarized as follows. The extent and proportion of agricultural labourer to total main workers has increased during this period. However, this increase is partly due to increase of population as well as the impact of green revolution. The Rural Labour Enquiry Reports reveals that the proportion of rural labour households to rural household remained constant, i.e., nearly one fifth of the total rural households during 1974-75 to 1993-94. The proportion of Scheduled Caste is highest under this category. Most remarkably, the proportions of agricultural labour households to rural labour households constitute nearly 80 percent and remained almost constant throughout the study period. Almost, one fifth of the rural households own no land or possess any other durable assets. Hence, they have to depend mostly on wage labour as their means of livelihood. This is an indication of casualisation of rural work force in the rural labour market.

There has been marginal increase of number of working days for male and children on the one hand and sharp increase in the number of working days for women on the other hand during 1974-75 to 1993-94. Moreover, the increasing number of working women as well as number of working days for them reflects feminization of working force in both agricultural as well non-agricultural activities. However, we observed that the labour household to maintain their standard of living in various years adopts at least two strategies. The entry of women is considered as an outside labour force and it helps to enhance the earning of rural households. The proportion of working days in non-agricultural activities for both men and women has increased through self-employment and non-agricultural works. This shows the positive indication of working status of the labour class in the state. Finally, the demand for labour has declined and that affected the women category mostly in an unfavorable agricultural year, whereas, it could not restrict to increase the number of working days for women in normal years.

The money wages for both men and women has increased during the period under study. Moreover, the percentage of increase of money wage for both agricultural and non-agricultural activities for women has increased at a higher rate than that of men. This may appears an improvement in the economic condition of female. But, the fact that the absolute female average earning has far below than the male earning and the

difference has been maintained throughout the study period. In other words, there have been gender differentials of agricultural wages observed in the state during the study period. In addition, the existing data indicates that the real wages of men are always higher than that of women. The percentage of increase of money wage and number of days of employment for women is higher than that of men, but the percentage of increase of real wages for women is always less than that of male during the study period. The trend of real wages of agricultural labour has increased during 1980-81 to 1998-99 but it showed decelerating trend. Significantly, the trend growth rate of real wage in nineties is quite lower than that of eighties. However, the slow growth of real wages in nineties is reflected due to the combined impact of higher rate of increase in the cost of living with low rate of increase in money wages compared to eighties. This is an indication of less than proportionate increase of demand for agricultural labour than that of supply of labour in the labour market. Moreover, agricultural labourers are unable to meet their expenditure through income, hence they depend heavily on borrowing. Nearly, 40 percent of the rural households are indebted mostly from non-institutional sources for household consumption purposes. This creates a serious matter of concern in a growing population vis-à-vis agricultural labour in the state like Uttar Pradesh.

The proportion of rural households living below poverty line in the state is higher than that of national average. However, the incidence of poverty turns out to be highest among the agricultural labour households nearly 51 percent in all regions as well as the state level in 1999-2000. The widespread incidence of poverty in the rural labour households is due to underemployment and low wage paid to them. The declining trend of real wages in the nineties is caused due to relatively slow increase in wages than that of costs of living of these households. However, providing full employment (as policy variable) to these categories will not enable them sufficiently to reach above the poverty line. Slow agricultural growth as well as relatively low wage rate paid to them cause substantially low standard of living of these classes. Hence, massive increase in cropping intensity vis-à-vis non-agricultural activities would enhance the base of assets of these classes. However, strong bargaining power of the labour organization would able to fetch higher wages, which enable the agricultural labourers to meet their minimum requirements.

## References

Bardhan, Kalpana (1973), "Factors Affecting Wage Rates for Agricultural Labourers", *Economic and Political Weekly*, June.

Bardhan, P.K. (1970), "The Green Revolution and Agricultural Labourers: A Correction", *Economic and Political Weekly*, Special Number, September.

Bardhan, P.K. (1973), "Variations in Agricultural Wages- A Note", *Economic and Political Weekly*, Vol.8, No. 21. May.

Bartsch, W.H. (1977), *Employment and Technology Choice in Asian Agriculture*, Prayer Publication, New York.

Dev, M.S. (1988), "Poverty of Agricultural Labour Households in India: A State Level Analysis", *Indian Journal of Agricultural Economics*, Vol. 43, No. 1, Jan-Mar.

Dixit, R.S. and P.P. Singh (1970), "Impact of High Yielding Varieties on Human Labour Inputs", *Agricultural Situation in India*, New Delhi.

Dixon, R.B. (1978), Rural Women at Work Strategies for Development in South India, John Hopkins University.

Government of India (1991), *Census of India, Final Population Totals*, Registrar General and Census Commission, New Delhi.

Government of India (1999-2000), National Sample Survey Organisation, 55<sup>th</sup> round, Ministry of Statistics and Programme Implementation, July 1999-June 2000.

Government of India (2001), *National Human Development Report*, Planning Commission, New Delhi.

Government of Uttar Pradesh (2002-2003), Tenth Five Year Plan, 2002-2007 and Annual Plan, 2002-2003, State Planning Commission, Vol. II.

Jose, A.V. (1974), "Trends in Real Wage Rates of Agricultural Labourers", *Economic and Political Weekly*, Vol. IX, No.13, March 30.

Jose, A.V. (1988), "Agricultural Wages in India", *Economic and Political Weekly*, June 25.

Lal, D. (1976), Agricultural Growth, Real Wages and Rural Poor in India", *Economic and Political Weekly*, June 26.

Mishra, V. N. (1970), "Labour Market in Agriculture: A study of Gujarat Districts", *Indian Journal of Agricultural Economic*, Vol.35, No.3, July-Sept.

Mundle, Sudipto (1984), "Land, Labour and the Level of Living in Rural Punjab", in Khan, A.R. and Eddy Lee (eds.), *Poverty in Rural Asia*, ILO, Asian Employment Programme (ARTEP), Bangkok.

Nayyar, Rohini, (1980), "Wages, Employment and Standard of Living of Agricultural Labourers in Uttar Pradesh", in International Labourer Organization (ed.), *Poverty and Landlessness in Rural Asia*, ILO, Geneva.

NCEAR (1973), *Impact of Mechanisation in Agriculture on Employment*, NCEAR, New Delhi.

Papola, T.S. and Mishra, V. N (1980), "Labour Supply and Wage Determination in Rural Uttar Pradesh", *Indian Journal of Agricultural Economics*, Vol.35, No.3, July-Sept.

Parthasarathy, G (1987), "Changes in the Incidence of Rural Poverty and Recent Trends in Some Aspects of Agrarian Economy", *Indian Journal of Agricultural Economics*, Vol.42, No.1, Jan-March.

Rao, V.M. (1972), "Agricultural Wages in India", A Reliability Analysis, *Indian Journal of Agricultural Economic*, Vol.37, No.3, July-Sept.

Sarmah, Sasank (2002), "Agricultural Wages in India: A Study of States and Regions", *Indian Journal of Labour Economics*, Vol.45, No.1.

Shah, S.L. and C.R. Singh (1970), "The impact of the New Agricultural Technology on Rural Employment in North-West in Uttar Pradesh", *Indian Journal of Agricultural Economics*, July-Sept.

Singh, A.K. (1987), *Agricultural Development and Rural Poverty*, Ashish Publishing House, New Delhi.

Singh, B., (1968), Economics of Tractor Utilisation: A Case Study", *Indian Journal of Agricultural Economics*, Jan-March.

The pioneer(2002), *English daily published at Lucknow*.

Unni, Jeemol, (1988), Agricultural labourers in Rural labour Households, 1956-57 to 1977-78: Changes in Employment, Wages and Income" *Economic and Political Weekly*, June 25.

Unni, Jeemol (1997), "Employment and wages among Rural Labourer: Some Recent Trend", *Indian Journal of Agricultural Economic*, Vol. 52, No11, Jan-march